

CLAIMS

I claim:

1. A method for stimulating hair growth, comprising:
exposing a hair growth structure to a source of electromagnetic radiation having a dominant emissive wavelength of from about 390 nm to about 1600 nm;
photostimulating said hair growth structure by maintaining the exposure of said hair growth structure to said source of electromagnetic radiation for a clinically effective duration and at a clinically effective light intensity.
2. The method of claim 1 further comprising, applying a photomodulation enhancing agent to said hair growth structure and the skin proximate thereto, prior to exposing said hair growth structure.
3. The method of claim 2 wherein said photomodulation enhancing agent includes an active ingredient selected from the group consisting of at least one of, Hydroquinone, Kojic acid, a growth factor, echinacea, an antibiotic, an antifungal, an antiviral, a bleaching agent, a salt water derivative, an enzyme, a catalyst, an antiaging substance, insulin, minerals, a hair growth stimulating substance, a hair growth inhibiting substance, a dye, a natural or synthetic melanin, proline, hydroxyproline, an anesthetic substance, chlorophyll, copper chlorophyllin, chloroplasts, carotenoids, bacteriochlorophyll, phycobilins, carotene, xanthophyll, anthocyanin, hair growth inhibitors include inhibitors of phospholipase A2, inhibitors of S – adenosylmethionine. Specific examples of these, but not limited to, include licorice, licochalone A, genestein, soy isoflavones, vitamin D, soy milk, inhibitors of nuclear factor kappa B (NF-kB), b3-AR adipocyte receptor, leptin, imiquinoid, urushiol, other topical or systemic immunomodulators, sulfhydryl compounds, free radical scavengers, antiandrogens,

sulfones, heterocyclic esters and amides, and inhibitors of the metabolism of such agents, derivatives, analogs, conjugates, natural or synthetic versions or genetically engineered or altered or immunologic conjugates with these agents.

4. The method of claim 3 further comprising subjecting said photomodulation enhancing agent to a penetration enhancing procedure prior to exposing said photomodulation enhancing agent to said source of electromagnetic radiation.

5. The method of claim 4 wherein said penetration enhancing procedure comprises a procedure selected from the group consisting of enzyme peel, microderm abrasion, solvent stripping, tape stripping, scrubbing, laser ablation, laser vaporization, chemical peeling, electrical stimulation, laser treatments using high peak power and short pulse durations, ultrasound, or combinations thereof.

6. The method of claim 5 wherein said penetration enhancing procedure comprises exposing said photomodulation enhancing agent to ultrasound.

7. The method of claim 5 wherein said penetration enhancing procedure comprises exposing said hair growth structure, said skin proximate thereto, or both to electrical stimulation.

8. The method of claim 1 wherein said source of electromagnetic radiation is selected from the group consisting of an ultrasound radiation emitter, a light emitting diode, a laser, a laser diode, a dye laser, a metal halide lamp, a halogen light, a flashlamp, a mechanically filtered fluorescent light source, a mechanically filtered incandescent or filamentous light source, and combinations thereof.

9. The method of claim 2 wherein said photomodulation enhancing agent has an absorption characteristic including an absorption maxima at a wavelength equal to said dominant emissive wavelength of said source of electromagnetic radiation.

10. A hair growth stimulation apparatus system comprising:
means for photomodulating a hair growth structure using electromagnetic radiation having a dominant emissive wavelength between about 300 nm and about 1600 nm; and a photomodulation enhancing agent.

11. The system of claim 10 wherein said means for photomodulating said hair growth structure comprises a light source selected from the group consisting of an ultrasound radiation emitter, a light emitting diode, a laser, a laser diode, a dye laser, a metal halide lamp, a flashlamp, a halogen lamp, metal-sulfide lamps, a mechanically filtered fluorescent light source, a mechanically filtered incandescent or filamentous light source, and combinations thereof.

12. The method of claim 10 wherein said photomodulation enhancing agent includes an active ingredient selected from the group consisting of at least one of, Hydroquinone, Kojic acid, a growth factor, echinacea, an antibiotic, an antifungal, an antiviral, a bleaching agent, a salt water derivative, an enzyme, a catalyst, an antiaging substance, insulin, minerals, a hair growth stimulating substance, a hair growth inhibiting substance, a dye, a natural or synthetic melanin, proline, hydroxyproline, an anesthetic substance, chlorophyll, copper chlorophyllin, chloroplasts, carotenoids, bacteriochlorophyll, phycobilins, carotene, xanthophyll, anthocyanin, hair growth inhibitors include inhibitors of phospholipase A2, inhibitors of S – adenosylmethionine.

13. The system of claim 12 wherein said photomodulation enhancing agent has an absorption characteristic including an absorption maxima at a wavelength equal to said dominant emissive wavelength of said source of electromagnetic radiation.

14. The system of claim 11 further comprising a pulse modulation unit capable of varying the duty cycle, pulse duration, or frequency, or combinations thereof, of the electromagnetic radiation emitted by said light source.

15. A method for stimulating hair growth comprising contacting a hair growth structure with a composition selected from the group consisting of retinoids, retinol, minoxidil, caffeine, phytoestrogens, nitric oxide generating agents, oxygen generating agents, polymixin, procyanidin B2, procyanidin C1, and derivatives, subcomponents, and analogs of the above, both natural and synthetic, and mixtures thereof; and exposing said hair structure to at least one source electromagnetic radiation having a dominant emissive wavelength of from about 390 nm to about 1600 nm.

16. A system for stimulating hair growth comprising:
at least one source of electromagnetic radiation capable of emitting light having a wavelength of from about 390 nm to about 1600 nm; and
a composition selected from the group consisting of retinoids, retinol, minoxidil, caffeine, phytoestrogens, nitric oxide generating agents, oxygen generating agents, polymixin, procyanidin B2, procyanidin C1, and derivatives, subcomponents, and

analogs of the above, both natural and synthetic, and mixtures thereof.

FOOTNOTES